

Hudson County Community College, NJ

Certificate in Construction Management (Program Curriculum)

CSS 100 – College Student Success 1 (College Requirement/HCCC students)

General Education Requirement*

	Course Code	Course Title	Credits
Communication	ENG 101	English Composition I	3
Technology and Competency	CSC 100	Introduction to Computers and Computing	3

Major (Specialized) Requirement

<u>Course Number</u>	<u>Course Title</u>	<u>Credit</u>
CNM 120	<u>Introduction to Engineering Science and Calculation</u>	<u>4</u>
CNM 201	<u>Introduction to Basic Structures</u>	<u>3</u>
CNM 202	<u>Construction Procedures, Material and Testing</u>	<u>4</u>
CNM 205	<u>Surveying and Site Planning</u>	<u>3</u>
CNM 220	<u>Construction Codes</u>	<u>3</u>
CNM 222	<u>Construction Project Management</u>	<u>4</u>
CNM 225	<u>Cost Estimation</u>	<u>3</u>
CNM 230	<u>Construction Project Planning and Control</u>	<u>3</u>
<u>Total Credits (General Education & Major Specialized)</u>		<u>34</u>

Suggested Sequence - Certificate in Construction Management

First Semester	Credits
<u>CSS 100 – College Student Success</u>	<u>1</u>
<u>ENG 101 – English Composition 1</u>	<u>3</u>
<u>CSC 100 – Introduction to Computers and Computing</u>	<u>3</u>
	7
 Second Semester	
<u>CNM 120 – Introduction to Engineering Sciences and Calculations</u>	<u>4</u>
<u>CNM 202 - Construction Procedures, Material and Testing</u>	<u>4</u>
<u>CNM 201 - Introduction to Basic Structures</u>	<u>3</u>
<u>CNM 205 - Surveying and Site Planning</u>	<u>3</u>
	14
 Third Semester	
<u>CNM 220 - Construction Codes</u>	<u>3</u>
<u>CNM 222 -Construction Project Management</u>	<u>4</u>
<u>CNM 225 -Cost Estimation</u>	<u>3</u>
<u>CNM 230 -Project Planning and Control</u>	<u>3</u>
	13
 TOTAL —	34

Program Related Courses

1. **Course Title: Introduction to Engineering Sciences & Calculation—CNM 120** Credits:4
This is a preparatory class for the students who intend to pursue a career in Construction Management or in the field of Civil Engineering. The course develops an understanding of the science and mathematics involved in engineering. Students learn to perform mathematical calculations used in construction and project management. Students analyze physical laws and how to apply that analysis in engineering fields., Co-requisite CSC 100
2. **Course Title: Introduction to Basic Structures —CNM 201** Credits:3
This course provides students with a basic knowledge of structural analysis and design for buildings, bridges and other structures. Students investigate the behavior of structural systems and elements through design exercises, case studies, and load testing of models. Students design structures using timber, masonry, steel, and concrete and gain an appreciation of structural design, with an emphasis on environmental impact associated with large scale construction.
3. **Course Title: Construction Procedures, Material and Testing — CNM 202** Credits:4
Construction Procedures, Materials and Testing is a course in which construction systems are discussed along with material stresses and other engineering concepts. The course provides an introduction to materials used in construction as well as techniques used in blueprint reading for building construction. Students learn about construction methods through demonstrations and lab experiments. The main emphasis is on structural steel, masonry, wood, reinforced concrete, and combined structural systems. Students develop understanding of the construction process with different materials. They understand the relevant engineering and mathematical relationships.
Plant Operations (asphalt plant, concrete plant) – rate of production vs rate of installation/construction.
4. **Course Title: Surveying and Site Planning — CNM 205** Credits:3
Students learn site development, site selection, site analysis, site plans, designs, and approval processes. Students are introduced to the principles of construction surveying, project layout, and operation of surveying equipment. Topics include: interaction of surveying with other disciplines, measurements, concepts, accuracy, precision, and levelling; methods for measuring distance, elevation angles, bearings and azimuths using level instrument and transits; traverses and computations; basic topography and mapping. Laboratory and fieldwork experiences include a field trip to a nearby construction project to review equipment site planning and surveying procedures; and a team project to review steps involved in site planning through completion of two types of construction sites: a traverse and an as-built survey.
5. **Course Title: Construction Codes — CNM 220** Credits:3
This course provides students with a theoretical understanding of how to examine new and old structures to ensure they are built properly and follow applicable building codes and safety regulations. This course provides an introduction to the basics of working in the

building inspection field with the knowledge of construction codes, required documentation protocol, and standard practices.

6. **Course Title: Construction Project Management — CNM 222** Credits:4
Students learn the processes, techniques and procedures involved in a construction project from conception to completion. The course provides an opportunity to learn about common construction methods and materials involved. Students also learn technical skills involving in the areas of cost control, scheduling, risk analysis, delay analysis, administrative procedures, safety regulations, labor relations, and record keeping.
7. **Course Title: Cost Estimation — CNM 225** Credits:3
*Students acquire a basic understanding of managing a project's cost in association with reading and interpreting construction blueprints. The certificate introduces the types of cost estimation from the conceptual design phase through the more detailed design phase of a construction project. In addition, the certificate highlights the importance of controlling costs and how to monitor project cash flow. Students develop a break-even analysis of construction tasks in a project. **Co-requisite CSC 100***
8. **Course Title: Construction Project Planning and Control — CNM 230** Credits:3
*Students develop a basic understanding of project planning by comparing alternative designs and construction plans, methods of contracting, design management, and forms of information flow. Activities include writing contract proposal, identifying core problems in a proposal and their mitigation, preparing master plan schedules, tendering procedures, contractor cost calculations, and bid preparation. Students learn to budget, to plan and schedule construction, to manage production, and to employ project controls. Students acquire a basic level of proficiency in appropriate software. Capstone project: Concepts introduced during lecture will be reinforced during lab sessions. **Co-requisite CSC 100,***